

**ABSTRACT OF THE DISCLOSURE**

An NMR experiment is carried out with a probe having an inlet tubing connected to a flow cell and a twisted-pair wire is tightly wrapped around the inlet tubing in a helical manner to serve as a heater. As a sample liquid flows from a sample source into the flow cell, it is preheated such that the time taken for it to reach thermal equilibrium is reduced. The use of a twisted-pair wire as a heater minimizes the effect of induced magnetic field. A control device includes a temperature sensor for sensing the temperature at the inlet tubing to control the electric current for the heater to maintain the preheating temperature at a selected level.